

## **Abstract**

The aim of the thesis is to summarize the basic information about the stem cells and outline their possible use in medicine.

The beginning of this thesis is focused on basic description of the stem cells, their properties, classification and method of acquisition. In next part of the thesis we are focused on typology of each of these cells and cell dividing.

Our focus is at utilization of stem cells in current medicine that is pivotal theme in mine thesis, use of mesenchymal cells, their transplantation and use in the treatment of arthrosis and in plastic surgery. The thesis is further focused on the use of hematopoietic, embryonic and stem cells from the umbilical cord blood – here are described diseases which can be treated with allogeneic umbilical cord blood, and also for their use in the treatment of diseases that can be treatable by cell therapy but which are still being researched such as diabetes mellitus and Parkinson's disease or the use of stem cells in preterm infants.